

REMARKS

Applicants note that Claims 20, and 30-33 have been amended to recite "passivation agent monolayer" to replace "self-assembled monolayer." Applicants submit that the definitions of these terms are identical, and thus should not be construed as any limitation of the claim scope. We note, in fact, that the claims as filed include the term "self-assembled monolayer." However in light of the recent written description requirements, Applicants wish to use claim terms consistent with the specification's definitions. *where in spec.?*

Claims 25-29 have been canceled and renumbered as Claims 31-35 for the convenience of the Examiner. In addition, Claim 30 is once again submitted, support for which can be found throughout the specification, drawings and originally filed claims. Therefore, after entry of this amendment, Claims 20, 22, 23 and 30-35 are pending in the instant case.

The amendments to the claims are presented in a revised format per the USPTO's announcement 'Revised Amendment Practice: 37 C.F.R. §1.121 Changed', signed 30 January 2003. Reconsideration of all of the pending claims in light of the amendments and remarks contained herein is respectfully requested.

Claim Objection

Claims 21 and 24-28 stand objected to as depending from a canceled claim. As discussed above, Claims 21 and 24-28 have been canceled. Accordingly, Applicants respectfully request withdrawal of this objection.

35 U.S.C. § 102(a)

Claims 20 and 28 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Ribí et al., U.S. Patent No. 5,571,568 ("Ribí").

Ribí teaches a bioelectronic sensor comprising (1) an electrically insulating solid support or substrate, (2) a highly oriented polymerized surfactant film which is electrically semiconducting or variably conducting as a result of the polymerization, and (3) distal from the support, a member of a specific binding pair joined to the surfactant molecules, wherein the specific binding pair member is used for linking to a molecule. The binding of a target to the binding member results in a change in the electromagnetic properties of the surfactant film, creating a detectable signal at the electrodes positioned on the substrate to either side of the film. See column 3, lines 17-24. Each test requires two electrodes, as it is the change in the electromagnetic properties of the surfactant film between these two electrodes that produces the detection signal.

As the Examiner is aware, the law is well established that in order to anticipate a claim, the prior art must disclose "each and every element" of the claimed invention. *SSIH Equipment S.A. v. U.S. Inc. Int'l. Trade Commission*, 218 USPQ 678, 688 (Fed. Cir. 1983). As stated by the Federal Circuit in *In re Bond*, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990), "[f]or a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference." (Emphasis added). See also *Glaverbel Societe Anonyme v. Northlake Marketing & Supply, Inc.*, 33 USPQ2d 1496 (Fed. Cir. 1995).

As discussed above, Ribí does not teach a binding ligand covalently attached to an electrode. Rather, Ribí teaches a film, with an attached member of a specific binding pair, which may or may not be covalently attached to an insulating substrate, not to an electrode. The

Examiner is invited to look at Figure 3 of Ribi, which clearly depicts the fact that binding ligands are specifically isolated from contact with the electrode. Note #30, which is stated within Ribi to be required so that current cannot flow between the electrodes. In addition, Ribi does not teach passivation agent monolayers, as the polymerized surfactant film is not equivalent to the claimed passivation agent monolayer. Accordingly, Ribi does not teach each and every limitation of the rejected claims, and therefore cannot anticipated these claims. Thus, Applicants respectfully request withdrawal of the rejection.

35 U.S.C. § 103(a)

Claims 21-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ribi in view of Kayyem et al., U.S. Patent No. 6,225,583 ("Kayyem"), and further in view of Kossovsky et al., U.S. Patent No. 5,585,646 ("Kossovsky"). Ribi is discussed above.

Kayyem teaches the detection of a target nucleic acid in a sample using probe nucleic acid labeled with an electron transfer moiety attached to an electrode via a spacer, where the spacer can be either an insulator or a conductive oligomer.

Kossovsky teaches the use of a polyhydroxy oligomer stabilization layer deposited on the surface of a semiconductor to which is bound an electronically active biochemical molecule.

When rejecting claims under 35 U.S.C. § 103, the Examiner bears the burden of establishing a prima facie case of obviousness. See, e.g., *In re Bell* 26 USPQ2d 1529 (Fed. Cir. 1993); M.P.E.P. Section 2142. To establish a prima facie case the prior art must provide one of ordinary skill with a suggestion or motivation to modify or combine the teachings of the references relied upon by the Examiner to arrive at the claimed invention; *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP Section 706.02(j).

Applicants note that MPEP § 2143.01 states if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. Applicants submit that by combining the invention disclosed in Ribi with Kayyem, the prior art invention would become inoperable. Specifically, replacement of the film disclosed in Ribi with the insulators taught by Kayyem would render the method disclosed in Ribi inoperable, as a signal could not propagate through such insulators and therefore would not be detected. In addition, replacement of the film disclosed by Ribi with the conductive oligomers disclosed in Kayyem would also render the prior art invention inoperable. Specifically, the conductive oligomers taught by Kayyem rely on attachment at one end to an electrode, whereas the system described in Ribi would have those conductive oligomers attached to an inert substrate with the electrodes positioned to either side of the oligomers. With such a spatial positioning, the signal detection described in Ribi would not function.

This deficiency is not corrected by the addition of Kossovsky. As discussed above, Kossovsky requires the use of an electronically active biochemical molecule. Combination of such an electronically active biochemical molecule with the teaching of Ribi would result in the generation of a signal (initiated by the electronically active molecule) even in situations where a target is not bound. Accordingly, Kossovsky could not function as a sensor, as it would not be able to detect the difference between the presence and absence of target. In addition, Kossovsky does not provide any teaching to correct the inoperability brought about either by the introduction of insulators, or by the spatial relationship of conductive oligomers and electrodes in the combination of Kayyem and Ribi discussed above. Accordingly, the

combination of Kossovsky with Kayyem and Ribi would also render the prior art invention inoperable.

In light of the preceding, the Examiner has failed to establish a motivation to combine the cited references. Accordingly, a prima facie case of obviousness based on those references has not been established and withdrawal of the rejection is respectfully requested.

Claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ribi in view of Wohlstadter et al., U.S. Patent No. 6,090,545 ("Wohlstadter"). Ribi is discussed above.

Wohlstadter teaches patterned, multi-array, multi-specific surfaces attached to electrodes which are then used in electrochemiluminescence based detection of target analytes.

The standard for a proper rejection under 35 U.S.C. § 103(a) is presented above. As is also discussed above, if the proposed combination of references would render the prior art invention being combined and modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In this case, combining Wohlstadter with Ribi would render Ribi inoperable. Specifically, the patterned, multi-array, multi-specific surface of Wohlstadter requires direct attachment of the PMAMS to an electrode in order to function. Accordingly, replacing the film taught by Ribi with the PMAMS surface taught by Wohlstadter would render the prior art invention inoperable, as the PMAMS surface would no longer be attached to an electrode, but instead attached to an inert surface with the electrodes positioned to either side. With such a spatial positioning, the signal detection described in Ribi would not function.

In light of the preceding, the Examiner has failed to establish a motivation to combine the cited references. Accordingly, a prima facie case of obviousness based on those references has not been established and withdrawal of the rejection is respectfully requested.

CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance and early notification to that effect is respectfully requested. Please direct any calls in connection with this application to the undersigned attorney at (415) 781-1989.

Respectfully submitted,
DORSEY & WHITNEY LLP

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By: 

Renee M. Kosslak, Reg. No. 47,717 for
Robin M. Silva, Reg. No. 38,304

Customer No.:
Dorsey & Whitney LLP
Four Embarcadero Center
Suite 3400
San Francisco, California 94111-4187
Telephone: (415) 781-1989
Fax No. (415) 398-3249

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